

AMENDMENTS TO THE CLAIMS

Please cancel claims 1-7 and 20, amend claim 8, and add claims 21-24, such that the status of the claims is as follows:

1-7. (Cancelled)

8. (Currently Amended) A vessel comprising:

- (a) an interior surface arranged for holding a liquid;
- (b) an multiple phase treatment composition inlet line for receiving and transporting a mixture of gas and liquid phases; and
- (c) at least one delivery head for delivering a multiple phase treatment composition in a generally upward and outward target spray pattern to the interior surface at a liquid flow rate of about 2 to about 20 gallons per minute and a volumetric ratio of gas to liquid of between about 5:1 and 75,000:1 at atmospheric pressure, at least one wherein the delivery head comprising comprises:
 - (i) a delivery arm attached to the cleaning composition inlet line, having an outlet from which the multiple phase treatment composition flows;
 - (ii) a spray diverter positioned with respect to the outlet of constructed to direct a multiple phase composition flowing through the delivery arm and to divert[[ed]] [[by]] the spray diverter to provide a multiple phase treatment composition flowing from the outlet generally upward and outward to create the target spray pattern on the interior surface; and
 - (iii) an open area in the delivery head sufficient to provide positioned with respect to the target spray pattern and diverter to allow passage of the multiple phase treatment composition and to provide a back pressure of less than about 10 psig when a multiple phase composition is flowing through the delivery head at a liquid flow rate of about 2 gal/min. to about 20 gal/min.,

~~and the volumetric ratio of the gas to liquid is between about 5:1 and about 75,000:1 at atmospheric pressure.~~

9. (Original) A vessel according to claim 8, further comprising:

(a) at least one attachment arm having a first end attached to the delivery arm and a second end attached to the spray diverter.

10. (Original) A vessel according to claim 9, further comprising a plurality of the attachment arms.

11. (Original) A vessel according to claim 8, wherein the open area comprises a plurality of openings.

12. (Original) A vessel according to claim 8, wherein the delivery arm comprises a pin receiving slot.

13. (Original) A vessel according to claim 8, wherein the open area in the delivery head is sufficient to provide a back pressure of less than about 5 psig.

14. (Original) A vessel according to claim 8, further comprising a product inlet.

15. (Original) A vessel according to claim 8, further comprising a vent for venting gas from the multiple phase treatment composition.

16. (Original) A vessel according to claim 15, wherein the vent comprises a demister for recovering liquid phase from the multiple phase treatment composition.

17. (Original) A vessel according to claim 8, further comprising a liquid outlet for recovering liquid from inside the vessel.

18. (Original) A vessel according to claim 8, wherein the vessel comprises at least one of a fermentation tank, an aging tank, a holding tank, a mixer, an evaporator, and a reactor.

19. (Original) A vessel according to claim 8, wherein the vessel has a capacity of between about 200 gallons and about 5,000 gallons and includes a single delivery head.

20. (Cancelled)

21. (New) A vessel comprising:

- (a) a vessel body having an interior surface;
- (b) an inlet line for receiving and transporting a mixture of gas and liquid phases; and
- (c) a delivery head located within the vessel body and spaced from the interior surface of the vessel body for delivering a multiple phase treatment composition in a generally upward and outward direction to contact the interior surface of the vessel body, wherein the delivery head comprises:
 - (i) a delivery arm joining the inlet line and the delivery head, having an opening from which the multiple phase treatment composition flows into the delivery head;
 - (ii) a spray diverter located within the delivery head and spaced from the delivery arm opening for diverting the multiple phase treatment composition flowing from the delivery arm generally upward and outward to contact the interior surface of the vessel body; and
 - (iii) at least one opening spaced from the spray diverter to allow passage of the multiple phase treatment composition from the delivery head to the interior

surface of the vessel body, wherein a liquid flow rate of about 2 to about 20 gallons per minute and a volumetric ratio of gas to liquid of between about 5:1 and 75,000:1 at atmospheric pressure provides a back pressure of less than about 10 psig.

22. (New) The vessel according to claim 21, wherein a liquid flow rate of about 2 to about 20 gallons per minute and a volumetric ratio of gas to liquid of between about 5:1 and 75,000:1 at atmospheric pressure provides a back pressure of less than about 5 psig.

23. (New) A vessel comprising:

- (a) a vessel body defining an interior chamber and suitable for containing flow of a liquid;
- (b) an inlet line for receiving and transporting a mixture of gas and liquid phases; and
- (c) a delivery head located in an open area within the interior chamber for delivering a multiple phase treatment composition to an interior surface of the vessel, wherein the delivery head comprises:
 - (i) a delivery arm for receiving flow of a multiple phase treatment composition from the inlet line and directing the flow through the delivery head;
 - (ii) at least one opening to allow passage of the multiple phase treatment composition from the delivery head to the interior surface of the vessel in a generally upward and outward direction; and
 - (iii) a spray diverter positioned with respect to the delivery arm and the at least one opening to divert the multiple phase treatment composition in a generally upward and outward direction to contact the interior surface of the vessel, wherein the spray diverter provides a back pressure of less than about 10 psig when the multiple phase treatment composition is flowing through the delivery head at a liquid flow rate of about 2 to about 20 gallons per minute

and has a volumetric ratio of gas to liquid of between about 5:1 and 75,000:1 at atmospheric pressure.

24. (New) The vessel according to claim 23, wherein the spray diverter provides a back pressure of less than about 5 psig when the multiple phase treatment composition is flowing through the delivery head at a liquid flow rate of about 2 to about 20 gallons per minute and has a volumetric ratio of gas to liquid of between about 5:1 and 75,000:1 at atmospheric pressure.